

interconnected components all or some of which are required to operate under a vacuum. The term "concentrator" as used in the present specification is therefore to be understood to cover all such apparatus.

Objects of the Invention

It is thus an object of the present invention in one embodiment thereof to provide a liquid concentrator which overcomes or at least ameliorates problems with such liquid concentrators available to the present time and/or which at least will provide the public with a useful choice.

Further objects of this invention may be become apparent from the description.

Summary of the Invention

According to one aspect of the present invention there is provided a liquid concentrator having a plurality of components required to operate in use under vacuum and wherein said components are adapted to be provided within a common enclosing means and within which a required vacuum can, in use, be established.

According to a further aspect of the present invention there is provided a method of constructing a liquid concentrator having a plurality of components each required to operate under a vacuum, said method including providing said components with a common enclosing means and adapting said enclosing means to have a required vacuum established therein.

According a still further aspect of the present invention a liquid concentrator and/or a method of constructing a liquid concentrator is/are substantially as herein described with reference to the accompanying drawing.

According to a still further aspect of the present invention, an apparatus (other than a liquid concentrator) is constructed according to any of the three immediately preceding paragraphs.

Further aspects of this invention which shall be considered in all its novel aspects

CLAIMS:

1. A liquid concentrator having a plurality of components required to operate in use under vacuum and wherein said components are adapted to be provided within a common enclosing means and within which a required vacuum can, in use, be established.
2. A liquid concentrator as claimed in claim 1 in which the enclosing means is a vacuum vessel or chamber.
3. A liquid concentrator as claimed in claim 2 in which the components include a feed section for receiving the liquid to be concentrated, an evaporation/condensing section to produce concentrated liquid and vapour, a separation means to separate the concentrated liquid from the vapour and a vapour compression means, all accommodated within the vacuum vessel or chamber.
4. A liquid concentrator as claimed in claim 3 wherein a drive means for the said vapour compression means is provided outside said vacuum vessel or chamber and a sealing means provided about a shaft of the compressing means to enable its entry into the vacuum vessel or chamber and its connection, to drive, said vapour compressor.
5. A liquid concentrator as claimed in claim 3 where a drive means for the said vapour compression means is also provided within said vacuum vessel or chamber.
6. A liquid concentrator as claimed in claim 3 in which the vapour compression means produces compressed steam pressurised between about .2 bar (a) to .4 bar (a) and temperatures of the feed liquid and concentrate are between about 60°C to 70°C.
7. A liquid concentrator substantially as herein described with reference to any one of the embodiments of the accompanying drawings.

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8. A method of constructing a liquid concentrator having a plurality of components each required to operate under a vacuum, said method including providing said components with a common enclosing means and adapting said enclosing means to have a required vacuum established therein.
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9. A method as claimed in claim 8 wherein the enclosing means is provided as a vacuum vessel or chamber.
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10. A method as claimed in claim 9 in which said components provided within the vacuum vessel or chamber include a feed section and an evaporation/condensing section having a separation area to separate concentrated liquid and vapour and wherein the method further includes providing a seal for a connection into the vacuum vessel or chamber of a drive means to drive a vapour compressor.
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11. A method as claimed in claim 9 in which said components included within the vacuum vessel or chamber include a feed section and an evaporation/condensing section having a separation area to separate concentrated liquid and vapour and said method further including providing a vapour compression means and a drive therefor also within said vacuum vessel or chamber.
12. A method of constructing a liquid concentrator substantially as herein described with reference to any one of the embodiments of the accompanying drawings.